

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (canceled).

2. (previously presented): A method according to Claim 20, wherein said reactive gas consists essentially of a member selected from oxygen-containing, nitrogen-containing gases and mixtures thereof.

3. (previously presented): A method according to Claim 20, wherein a ratio of flow rate of the reactive gas/(flow rate of the reactive gas + flow rate of an inert gas) x 100 is not greater than 50%.

4. (previously presented): A method according to Claim 20, wherein the dry plating is sputtering.

Claims 5 - 19. (canceled).

20. (previously presented): A method for controlling a refractive index of dry plating film which comprises the steps of: providing silicon carbide as a starting source consisting essentially of a silicon carbide sintered product which is obtained by sintering a homogeneous mixture having a density of 2.9g/cm^3 or over and made of silicon carbide powder and a non-metallic sintering aid, and subjecting the silicon carbide to dry plating while controlling a concentration of a reactive gas including a nitrogen-containing gas thereby forming a thin film, on the substrate, made primarily of silicon carbide and having a refractive index ranging from 1.4 to 2.8.

21. (previously presented): A method according to claim 20, wherein said non-metallic sintering aid is selected from coal tar pitch, phenolic resins, furan resins, epoxy resins, glucose, sucrose, cellulose and starch.

22. (currently amended): A method for making a dry plating built-up, comprising the steps of[[:]]:

providing silicon carbide as a starting source, and subjecting the silicon carbide to dry plating while changing a concentration of a reactive gas continuously or intermittently, thereby depositing and forming, on a substrate, a thin film having different refractive indices which changes in a wave form selected from a ~~rectangular wave~~, triangular wave and sine wave in the thickness direction thereof.

23. (new) A method according to claim 20, wherein the thin film formed on the substrate, made primarily of silicon carbide, comprises a mixture of SiC, Si₃N₄, SiN, and SiC_xN_y, wherein $x > 0$ and $y > 0$.

24. (new) A method according to claim 20, wherein the thin film formed on the substrate, made primarily of silicon carbide, comprises SiC_xN_y, wherein $x > 0$ and $y > 0$.

25. (new): A method for making a dry plating built-up, comprising the steps of:
providing silicon carbide as a starting source, and subjecting the silicon carbide to dry plating while changing a concentration of a reactive gas continuously or intermittently, thereby depositing and forming, on a substrate, a thin film having different refractive indices which changes, said thin film comprising SiC_xN_y, wherein $x > 0$ and $y > 0$.

26. (new) A method according to claim 24, wherein the refractive indices of said thin film changes in a rectangular wave form in the thickness direction thereof.

27. (new) A method according to claim 24, wherein the refractive indices of said thin film changes in a triangular wave form in the thickness direction thereof.

AMENDMENT UNDER 37 C.F.R. § 1.111
Application No.: 10/647,251

Attorney Docket No.: Q77129

28. (new) A method according to claim 24, wherein the refractive indices of said thin film changes in a sine wave form in the thickness direction thereof.